

U.S.S.N. 10/635,316

Filed: August 6, 2003

**AMENDMENT AND RESPONSE TO OFFICE ACTION**

**Amendment**

**In the Claims**

1-94. (cancelled)

95. (currently amended) A blown or cast free-standing film comprising PHA a polyhydroxyalkanoate (PHA), wherein the PHA has a  $M_w$  greater than about 420,000 456,000 and wherein the film is made from a pellet composition ~~of claim 66~~ comprising the PHA and a thermal stabilizer.

96. (currently amended) The film of claim 95, wherein the film is a blow blown film.

97. (previously presented) The film of claim 96, wherein the draw ratio of the blown film is between about 2 and 7.

98. (previously presented) The film of claim 96, wherein the film has a percent elongation at break greater than 65%.

99. (previously presented) The film of claim 96, wherein the film has a percent elongation at break greater than 75%.

100. (previously presented) The film of claim 96, wherein the film has a tensile strength at break greater than 50 Mpa.

101. (previously presented) The film of claim 96, wherein the tensile strength at break is greater than 75 Mpa.

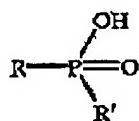
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102. (currently amended) A method of producing a blown or cast free-standing film, comprising melting a pellet composition comprising a PHA and a thermal stabilizer, wherein the PHA has a molecular weight greater than 456,000.

103. (previously presented) The method of claim 102 wherein the thermal stabilizer is an organophosphorous compound having the structural formula:



where R' is R or OH, and R is a branched or unbranched saturated C<sub>1</sub>-C<sub>30</sub> group, a branched or unbranched unsaturated C<sub>2</sub>-C<sub>30</sub> group, a C<sub>6</sub>-C<sub>30</sub> aromatic group, or a saturated or unsaturated C<sub>6</sub>-C<sub>30</sub> cycloaliphatic group.

104. (previously presented) The method of claim 102, wherein the film is produced by a continuous process.

105. (previously presented) The method of claim 102, wherein the melt is formed into a film by film blowing.

106. (currently amended) The method of claim 102, wherein the PHA in the pellet has a M<sub>w</sub> greater than 470,000, and wherein the PHA in the film is has a M<sub>w</sub> greater than 420,000 456,000 Daltons.

107. (previously presented) The method of claim 103, wherein the organophosphorous compound further contains one or more O, N, or S atoms in the alkyl chains.

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108. (previously presented) The method of claim 103 wherein the organophosphorous compound is substituted with one or more hydroxyl, halo, carboxylic acid or ester, cyano, aryl, amino, hydroxylamino, mono-, di-, or trialkyl amino, or phosphonic acid groups.

109. (currently amended) The method of claim 103, wherein the organophosphorous compound is selected from the group consisting of cyclohexylphosphonic acid, 1-cyclohexenylphosphonic acid, 1-hydroxycyclohexenylphosphonic acid, 1-hexanephosphonic acid, 1-hydroxyethylidene-1,1-diphosphonic acid, ~~or~~ dicyclohexylphosphonic acid, and 2,4,4-(trimethylpentyl)cyclohexylphosphonic acid.

110. (previously presented) The method of claim 102 wherein the pellet composition further comprises an oxide, hydroxide, or carboxylic acid salt of a metal from Groups I to V of the Periodic Table.

111. (previously presented) The method of claim 102, wherein the pellet composition further comprises calcium stearate, magnesium stearate, zinc stearate, or zinc oxide.

112. (previously presented) The method of claim 103, wherein the organophosphorous compound is a diphosphonic acid.

113. (previously presented) The method of claim 112, wherein the diphosphonic acid is hydroxyethylidene-1,1-diphosphonic acid.

114. (previously presented) The method of claim 102 wherein the pellet composition further comprises a fatty acid salt of a metal from Groups I to V of the Periodic table

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115. (previously presented) The method of claim 102 wherein the pellet composition further comprises a weak organic base selected from fatty acid amides.

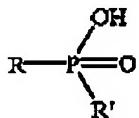
116-124. (cancelled)

125. (previously presented) The blow or cast free-standing film of claim 95 wherein the pellet composition further comprises a material selected from the group consisting of boron nitride and acetylbutylcitrate.

126. (previously presented) The method of claim 103 wherein the pellet composition further comprises a material selected from the group consisting of boron nitride and acetylbutylcitrate.

127. (previously presented) The method of claim 117 wherein the PHA and thermal stabilizer are combined with a material selected from the group consisting of boron nitride and acetylbutylcitrate.

128. (new) The film of claim 95, wherein the thermal stabilizer is an organophosphorous compound having the structural formula:



where R' is R or OH, and R is a branched or unbranched saturated C<sub>1</sub>-C<sub>30</sub> group, a branched or unbranched unsaturated C<sub>2</sub>-C<sub>30</sub> group, a C<sub>6</sub>-C<sub>30</sub> aromatic group, or a saturated or unsaturated C<sub>6</sub>-C<sub>30</sub> cycloaliphatic group.

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129. (new) The film of claim 128, wherein the organophosphorous compound further contains one or more O, N, or S atoms in the alkyl chains.

130. (new) The film of claim 128, wherein the organophosphorous compound is substituted with one or more hydroxyl, halo, carboxylic acid or ester, cyano, aryl, amino, hydroxylamino, mono-, di-, or trialkyl amino, or phosphonic acid groups.

131. (new) The film of claim 102, wherein the organophosphorous compound is selected from the group consisting of cyclohexylphosphonic acid, 1-cyclohexenylphosphonic acid, 1-hydroxycyclohexenylphosphonic acid, 1-hexanephosphonic acid, 1-hydroxyethylidene-1,1-diphosphonic acid, dicyclohexylphosphonic acid, and 2,4,4-(trimethylpentyl)cyclohexylphosphonic acid.

132. (new) The film of claim 95, wherein the pellet composition further comprises an oxide, hydroxide, or carboxylic acid salt of a metal from Groups I to V of the Periodic Table.

133. (new) The film of claim 95, wherein the pellet composition further comprises calcium stearate, magnesium stearate, zinc stearate, or zinc oxide.

134. (new) The film of claim 95 wherein the film is oriented uniaxially.

135. (new) The film of claim 95 wherein the film is oriented biaxially.